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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,005	01/26/2006	Dong Wang	CN 020044	7162
24737 7590 11/07/2008 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
WANG, TED M				
ART UNIT		PAPER NUMBER		
2611				
MAIL DATE		DELIVERY MODE		
11/07/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/541,005

Applicant(s)

WANG ET AL.

Examiner

TED M. WANG

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-14 and 20 is/are rejected.
7) ☒ Claim(s) 15-19 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 28 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Preliminary Amendment

1. The preliminary amendment filed on 6/28/2005 has been entered.

Specification

2. The disclosure is objected to because of the following informalities:

- Page 3, line 12, change "Fig.3" to --- Fig.2 ---.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim(s) 1-9 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, titled "Clarification of 'Processes' under 35 U.S.C. 101"). The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (US 7,092,452).

- With regard claim 1, Taylor et al. discloses a detection method for the downlink training sequence in a CDMA system, which is used in mobile terminals, comprising the following steps:

- a) performing correlator operation on the training sequence of mobile terminals and getting a number of peak positions (Fig.5 element 56, Fig.6 elements 56 and 90₁ – 90_N, and column 11 line 58 – column 12 line 10, where each of the detection statistic calculator performs correlation function for received input $r(n, p)$ and the composite training sequence in each frame with a specific sliding window to get the peak);

- b) detecting the training sequence intensity of other mobile terminals according to the positions of the formerly obtained multiple peaks (Fig.5 element 56, Fig.6 elements 56 and 90₁ – 90_N, and column 11 line 58 – column 12 line 10, where each of the detection statistic calculator performs

correlation function for received input $r(n, p)$ and the composite training sequence in each frame with a specific sliding window to get the individual peak (including all other users' training sequences));

c) judging whether the training sequences of other mobile terminals are active according to the detected training sequence intensity (Fig.5 and Fig.9 element 60, and column 18 line 53 – column 19 line 19, especially, column 19 lines 10-19, where the active user is detected if $u(k)$ equal 1).

Taylor et al. discloses the claimed invention except for performing matched filter operation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the correlator function with the matched filter function since the examiner takes Official Notice of the equivalence of matched filter and correlator for their use in the digital communication art and the selection of any of these known equivalents to detect the maximum peak between a receiving input signal and a known sequence would be within the level of ordinary skill in the art.

- With regard claim 2, Taylor et al. further discloses wherein in step a), a threshold value for detecting training sequence intensity can be achieved by matched filter operations (Fig.5 elements 52 and 56, Fig.7 element 52, and column 13 lines 45-51 and column 19 lines 28-57, Fig.10 element 106, where the threshold is calculated by element 52).
- With regard claim 3, Taylor et al. further discloses wherein said threshold value is specified times of the estimated noise power (Fig.5 and Fig.7

element 52 and column 13 lines 45-51 and column 19, lines 28-57, where the noise power is calculated by equation 13).

- With regard claim 4, Taylor et al. further discloses wherein noise power is obtained in this way: calculating the power of the matched filter output peaks in step a) (Fig.7 element 72 and column 14 lines 15-22) excluding said multiple peak values (Fig.7 element 78 and column 15 lines 23-30) and then calculating their average (Fig.7 element 82 and column 14 lines 30-36).
- With regard claim 10, which is a receiver claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 12, which is a receiver claim related to claim 2, all limitation is contained in claim 2. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 13, which is a receiver claim related to claim 3, all limitation is contained in claim 3. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 14, which is a receiver claim related to claim 4, all limitation is contained in claim 4. The explanation of all the limitation is already addressed in the above paragraph.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (US 7,092,452) in view of the admitted prior art of the instant application.

- With regard claim 11, Taylor et al. further discloses a multi-user detector (Fig.3 element 18).

Taylor et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching channel code detecting means and multi-user detecting means, wherein: the channel code detecting means detects activated channel code according to the activated training sequences and corresponding relation between the training sequences and channel codes, and gives the activated channel code to the multi-user detecting means; and the multi-user detecting means recovers communication pulse according to the activated channel code and estimated channel response pulse.

However, the admitted prior art of the instant application teaches channel code detecting means (page 2 lines 24-26) and multi-user detecting means (page 2 lines 26-28), wherein the channel code detecting means detects activated channel code according to the activated training sequences (page 2 lines 21-26, where each specific training sequence is corresponding to its individual channel code, page 2 lines 15-17 and 25-26) and corresponding relation between the training sequences and channel codes (page 2 lines 15-17 and 25-26, where each specific training

sequence is corresponding to its individual channel code), and gives the activated channel code to the multi-user detecting means (page 2 lines 27-28, where the detected (activated) channel codes are sent to the MUD so that the received data can be recovered by the MUD); and the multi-user detecting means recovers communication pulse according to the activated channel code and estimated channel response pulse (page 2 lines 27-28) in order to properly recover the received signal so that the communication quality can be improved. Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the MUD means and channel code detecting means as taught by the admitted prior art of the instant application into Taylor's MUD circuitry so as to improve the communication performance.

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chien (US 6,512,478) in view of Taylor et al. (US 7,092,452).

- With regard claim 20, Chien discloses a mobile terminal including a receiver with multi-user detector (Fig.9 and column 21 lines 56-67).

Chien discloses all of the subject matter as described in the above paragraph except for specifically teaching the mobile terminal including the receiver as claimed in claim 10.

However, Taylor et al. teaches the receiver as claimed in claim 10 as described in the above paragraph in order to allow multiple users to operate in the same communication channel and accurately separate co-channel

signals and reduce complex processing (column 2 lines 38-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the receiver as taught by Taylor et al. to substitute the Chien's receiver in the mobile terminal so as to allow multiple users to operate in the same communication channel and accurately separate co-channel signals and reduce complex processing.

Allowable Subject Matter

9. Claims 15-19 are objected to as being dependent upon an objected claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ted M Wang/
Primary Examiner, Art Unit 2611